How Northwest Timber Can Produce Green Energy and Create Jobs

COMMITTEE ON
SCIENCE AND TECHNOLOGY

Subcommittee on
Energy and Environment

U.S. House of Representatives

The Role of Forest Products in Solving the Nation's
Energy and Climate Challenges

Monday, April 20, 2009

9:00 a.m. - 11:00 a.m.

City of Vancouver's Water Resources
Education Center,

4600 SE Columbia Way, Vancouver,
WA

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PURPOSE

On Monday, April 20 the
Subcommittee on Energy and Environment will hold a field briefing to discuss the vast potential of forestry in developing and deploying clean, renewable energy sources. The following issues will be evaluated: supply and regulation of forest biomass available for renewable energy purposes; currently available technologies

being utilized by businesses, hospitals, schools and families; and opportunities for expanded utilization of biomass sources and technologies.

Participants

Panel One: Supply and Regulation of Forest Biomass

- Craig Partridge is the Policy and Governmental Relations Director at the Washington Department of Natural Resources. He discussed the role of state governments in the development of biomass-to-energy technologies. Mr. Partridge highlighted state laws that encourage the development of process technologies for biomass feedstocks. He also described barriers to technology development due to prohibitory federal regulations.Read Mr. Partridge's Testimony

- Dave Sjoding is a Renewable Resource Specialist and Team Leader of the Pacific Regional Biomass Energy Partnership operated by the Extension Energy Program at Washington State University. He provided a brief overview of the Washington State report, "Biomass Inventory and Bioenergy Assessment," with specific attention to the availability of forest biomass in the state. He also compared the findings of this assessment verses other major assessments. Read Mr. Sjoding's Testimony

- Mary Wagner is the Northwest Regional Forester for the U.S. Forest Service. Ms. Wagner provided a brief overview of the U.S. Forest Service bioenergy activities in the Northwest. She described the benefits of bioenergy production for forest health, economic growth and climate mitigation. She highlighted the importance of appropriately scaled facilities when working with forest biomass and how this might impact forest management.Read Ms. Wagner's Testimony

- Tom Partin is the President of American Forest Resource Council. He provided a brief overview of his work with the U.S. Forest Service on bioenergy activities in the Northwest. He touched on the pros and cons of bioenergy production to his members including both the forest product companies and forest landowners. Mr. Partin also discussed regulatory and technological barriers to sustainable forest bioenergy production. Read Mr. Partin's Testimony

- Jim Walls is the Executive

Director of the Lake County Resources Initiative. Mr. Walls provided a brief overview of the Lake County Resources Initiative, specifically highlighting its biomass power plant. He described the costs and benefits of the Initiative for rural communities including economic benefits, and environmental services and participation by a variety of stakeholders. Read Mr. Walls' Testimony

Panel Two: Forest Biomass Energy Technology Being Utilized and Developed

- John Holladay is the Manager of the Biomass Business Sector for the Energy and Environment Directorate at the Pacific Northwest National Laboratory (PNNL). Mr. Holladay provided a brief overview of the forest biomass related work at PNNL, including conversion technologies such as pyrolysis. He also discussed the importance of biobased products to the viability of biorefineries, focusing on markets and current infrastructure.Read Mr. Holiday's Testimony

- Kristiina Vogt is a professor in the Systems and Bio-Energy Program in the College of Forest Resources at the University of Washington. Ms. Vogt provided a brief overview of her bio-methanol mobile technology, including a focus on the multiple markets for its end products, and discussed the importance of appropriately scaled conversion technologies. She also commented on future research needed to overcome barriers to the technology. Read Dr. Vogt's Testimony

- Rick Gustafson is a professor of Forest Resources and an adjunct professor in chemical engineering in the College of Forest Resources at the University of Washington. Mr. Gustafson provided a brief overview of his research on biopower at pulp and paper mills. He also discussed

"off the shelf" technologies that could be deployed at pulp and paper mills that could produce energy and help these facilities become more energy efficient and environmentally sustainable. He also highlighted the role of gasification at mills. Read Mr. Gustafson's Testimony

- Denny Hunter is the Chief Technology Officer for Catchlight Energy LLC, a Chevron/Weyerhaeuser Joint Venture. Mr. Hunter provided a brief overview of Catchlight Energy and discuss why forest biomass is an important feedstock for biofuels production. He explained the different supply chain issues with woody biomass and how different technology solutions could be used to reduce the cost of logistics and conversion of this material.Read Mr. Hunter's Testimony

BACKGROUND

According to Science magazine, "American forests were recently estimated to be able to produce 368 million dry tons of wood for energy generation per year. This yield is likely an underestimate, as it does not account for wood used for pulp and paper or low-value solid products, or wood from fast-growing trees on non-agricultural lands." From biomass resources, such as wood, we can derive products as diverse as fuels and lubricants, heat and electricity, chemicals, food, feed, buildings materials, paper, fiber, and much more. All of these products may have the benefits of adding financial value to the forest and supporting restoration and improvement in the form of timber-stand thinning.

Wood or forest biomass as a renewable and domestic resource can substantially improve our economy, national security, and environment. Biomass technologies may lead to cleaner air and water for our communities by offsetting fossil fuel consumption and related emissions. When forest biomass is harvested in conjunction with a sustainable forest management plan important restoration goals may be achieved, such as wildfire mitigation, watershed protection, wildlife habitat restoration and reduced insect infestation. Furthermore, new concepts in integrated biorefineries that produce a wide variety of fuels, power and value-added chemicals and materials can serve a role in revitalizing rural economies.

To achieve these benefits new research needs to be funded. Enhanced basic and applied research, commercialization of new methods and technologies aimed at collection and conversion of the biomass, as well as identifying sources, locations and cost analyses for the available biomass is needed. Significant research breakthroughs are needed in a number of key areas including advances in plant science to improve the cost effectiveness of converting biomass to fuel, power, and products. In addition, R&D in geographical information systems (GIS) will help the U.S. more accurately identify biomass availability, especially forest biomass. For example, R&D could focus on more precise forest residue collection. Moreover, some of the biggest challenges are feedstock handling and forest residue collection, which are currently inefficient making this resource costly to harvest.

A mix of policies and incentives support-ive to biobased fuels, power and products could be pursued in combination with education of both decision makers and the public on their benefits. Workforce education also would be required as the U.S. lacks the technical workforce to harvest, handle, and integrate biomass into existing infrastructure. To that end, several federal and state programs and initiatives have begun so that many of these technological and information difficulties can be resolved.